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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,086	02/27/2004	Takeshi Kato	NIT-156-05	4293

7590 06/29/2005

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EXAMINER

SONG, SARAH U

ART UNIT PAPER NUMBER

2874

DATE MAILED: 06/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/787,086

Applicant(s)

KATO ET AL.

Examiner

Sarah Song

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2005 and 28 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 20-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 09/402,585.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received:

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 28, 2005 has been entered. Claims 20, 25, 30 and 31 have been amended. Claims 32 and 33 are newly added. Claims 20-33 are pending.

2. **Claims 20-24, 30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blonder et al. (U.S. Patent 4,897,711 newly cited) in view of Collins et al. (U.S. Patent 5,852,696 previously relied upon).**

3. Regarding claim 20, Blonder et al. discloses an optical module comprising:

- an optical device 11;
- an optical fiber 20 optically coupled to said optical device at one end; and
- a lead frame 12 electrically coupled to said optical device;
- wherein said optical device and said optical fiber are mounted on a non-metal substrate 22;
- and silicone is filled between a face of said optical device that is optically coupled to said optical fiber, and an end of said optical fiber that is optically coupled to said optical device (column 7, lines 1-3).

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4. Blonder et al. discloses the claimed invention except for a communication processing unit.

5. Collins et al. discloses that it is known for optoelectronic devices to be coupled to a communication processing unit, such as a fiber to the home telecommunications network (column 1, lines 60-64).

6. Blonder et al. and Collins et al. are analogous art because they are from the same field of endeavor, that is packaged optical and optoelectronic devices.

7. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to couple a communication processing unit with the device of Blonder et al.

8. The motivation for doing so would have been to provide a transmission network for efficient low-cost, high-speed communications.

9. Blonder et al. also does not expressly disclose the silicone to be a resin.

10. Hirai et al. discloses an optical junction comprising a silicone resin filled between abutting end faces of optical waveguide unit 60, and optical fiber units 70 and 80 (column 14, lines 4-9). It is additionally noted that silicone resin is a transparent resin.

11. Blonder et al. and Hirai et al. are analogous art as pertaining to optical devices.

12. One of ordinary skill in the art at the time the invention was made would have recognized the silicone disclosed by Blonder et al. to be a silicone resin.

13. Regarding claim 21, the refractive index of the transparent silicone resin is an index matching resin (see column 14, lines 4-9 of Hirai et al.). Therefore, the refractive index of the resin matches that of the optical fiber.

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14. Regarding claim 22, Hirai et al. does not expressly disclose that the silicone resin is a gel or is in gel form. However, silicone is well known in the art to be readily available in gel form. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide transparent resin in gel form in order to facilitate application of the resin at the interface.

15. Regarding claim 23, the optical device, said end of the optical fiber, and said substrate are placed inside a resin casing (column 5, lines 65+ of Blonder et al.).

16. Regarding claim 24, it is evident that the optical device, said end of the optical fiber and said substrate are placed in a cavity inside said resin casing, the cavity being filled by the optical device, said end of the optical fiber, and said substrate.

17. Regarding claim 30, Blonder et al. discloses that the resin case is molded (“molding operations associated with encapsulating the subassembly in a package”) but does not expressly disclose that the resin casing is formed by transfer molding. However, the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

18. Regarding claim 32, the substrate is a silicon substrate (column 3, line 36).

19. **Claims 25-29, 31 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blonder et al. in view of Hirai et al.**

20. Regarding claim 25, Regarding claim 20, Blonder et al. discloses an optical module comprising:

- an optical device 11;
- an optical fiber 20 optically coupled to said optical device at one end; and

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- a lead frame 12 electrically coupled to said optical device;
- wherein said optical device and said optical fiber are mounted on a non-metal substrate 22;
- and silicone is filled between a face of said optical device that is optically coupled to said optical fiber, and an end of said optical fiber that is optically coupled to said optical device (column 7, lines 1-3).

21. Blonder et al. does not expressly disclose the silicone to be a resin.

22. Hirai et al. discloses an optical junction comprising a silicone resin filled between abutting end faces of optical waveguide unit 60, and optical fiber units 70 and 80 (column 14, lines 4-9). It is additionally noted that silicone resin is a transparent resin.

23. Blonder et al. and Hirai et al. are analogous art as pertaining to optical devices.

24. One of ordinary skill in the art at the time the invention was made would have recognized the silicone disclosed by Blonder et al. to be a silicone resin.

25. Regarding claim 26, as noted above the refractive index of the transparent silicone resin is an index matching resin (see column 14, lines 4-9 of Hirai et al.). Therefore, the refractive index of the resin matches that of the optical fiber.

26. Regarding claim 27, Hirai et al. does not expressly disclose that the silicone resin is a gel or is in gel form. However, silicone is well known in the art to be readily available in gel form. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide transparent resin in gel form in order to facilitate application of the resin at the interface.

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27. Regarding claim 28, the optical device, said end of the optical fiber, and said substrate are placed inside a resin casing (column 5, lines 65+ of Blonder et al.).

28. Regarding claim 29, it is evident that the optical device, said end of the optical fiber and said substrate are placed in a cavity inside said resin casing, the cavity being filled by the optical device, said end of the optical fiber, and said substrate.

29. Regarding claim 31, Blonder et al. discloses that the resin case is molded ("molding operations associated with encapsulating the subassembly in a package") but does not expressly disclose that the resin casing is formed by transfer molding. However, the method of forming a device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight.

30. Regarding claim 33, the substrate is a silicon substrate (column 3, line 36).

### ***Response to Arguments***

31. Applicant's arguments with respect to claims 20-33 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarah Song whose telephone number is 571-272-2359. The examiner can normally be reached on M-Th 7:30am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on 571-272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sarah Song  
Patent Examiner  
Group Art Unit 2874